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§ 188. **Botrychium Lunaria in New York State.**—In June, 1872, Miss Jane Hosmer found by the Jamesville Road, near Syracuse, a very peculiar Botrychium, which, on account of its anomalous character and the absence of necessary data, I was unable for a long time to place satisfactorily.

Recently, through specimens collected by others in the same vicinity, I have become convinced that it is an extreme form of *B. Lunaria*, Swz., and, as such, it is a most interesting and remarkable specimen.

The whole plant is about 7′ in length, and separates near the middle into a fertile, and stalked sterile frond. The sterile frond is 3′, 8″ in length by only 5″ in breadth, narrowing only very slightly toward the apex, and is composed of small, alternate and distant, semilunate, or merely rounded, fleshy segments; its stalk is about 6″ in length. The fertile frond is similarly elongated to about the same length. The whole specimen has the appearance of having been *drawn out*, probably being an instance of non-development.

The specimen will be figured in a forthcoming paper on B. simplex, but, as I now regard it as a form of B. Lunaria, I think it only right that Miss Hosmer should have the credit of having first found this rare fern within the limits of New York State.

In 1873 Mr. E. W. Munday collected specimens of a more decided lunaria-like character, and in 1876 Mrs. Stiles M. Rust collected a number of specimens from the same locality, some of which exhibit the same anomalous characters as Miss Hosmer's specimen, but are less drawn out.

During the present season of 1877, Mrs. Rust has again collected it, and has kindly furnished me with a fine series of specimens, with living plants, and I have been able to connect them directly with *B. Lunaria*, Swz.

The specimens differ from the ordinary European and the Lake Superior forms in the stalked sterile frond, and the more distant, cuneate or less decided lunate forms of the segments.

Milde, in his admirable monagraph on the genus, mentions similar forms, and in his description of this species, says, that the sterile frond is sometimes stalked, even to the extent of 8″, and that the segments are sometimes distant, cuneate, or merely rounded in form.

The species is so rare in the United States that any discovery of it is worthy of notice.

It has only been found heretofore (so far as I know) on Isle Royale, in Lake Superior (Herb. University of Michigan, 1869; Henry Gillman, 1873).

I have seen it credited to the Rocky Mountains, but do not know of any specimens within our limits; but the Flora of New York State may now be credited with this rare fern, which gives to it every American Botrychium but one, *i. e.*, *B. boreale*, Milde. Who will find that?

GEO. E. DAVENPORT.

BOSTON, August, 1877.

§ 189. **Staten Island Plants.**—There is a patch of *Euphorbia Lathyris*, L., a short distance from New Dorp, on the Richmond Road. I have noticed it for two years, and it seems to be established.

Ludwigia sphaerocarpa, Ell., grows abundantly in several swamps near New Dorp; *Stachys hyssopifolia*, Michx., occurs in small quantities around the same places. I find *Caulophyllum thalictroides*, Michx., and *Sanguinaria Canadensis*, L., in woods near Egbertville; *Tipularia discolor*, Nutt., grows near there also. There are a number of trees of *Diospyros Virginiana*, L., between Court House and New Dorp, a short distance above the railroad. *Melitotus officinalis*, Willd., grows a short distance down New Dorp Lane, and *Chenopodium glaucum*, L., near the beach, on the same road. *Lechea thymifolia*, Pursh, occurs on the beach, near Garretsons. I have found both *Lathyrus palustris*, L., and the var. *myrtifolius*, Gray, in swamps along the salt meadows near New Dorp. *Hibiscus Trionum*, L., grew this year in a field near Court House. *Parnassia Caroliniana*, L., grows in a swamp near Silver Lake; near by is *Castilleia coccinea*, Spreng. The yellow-bracted variety grew there last year sparingly. *Pedicularis lanceolata*, Michx., occurs there also. I found this spring two plants of *Trientalis Americana*, Pursh, near Giffords. *Stylosanthes elatoir*, Swartz, grows in a cedar woods near Richmond. I noticed this summer, while walking along the meadows near Giffords, half a dozen plants of *Verbena hastata*, L., which, instead of having blue flowers, had them pure white; they grew in company with large quantities of the blue. Mr. Hollick found *Asclepias incarnata*, L., changed in the same manner. We found a specimen of *Vernonia Noveboracensis*, L., on the same sport. Mr. Hollick found *Hottonia inflata*, Ell., in a pond near Mariners' Harbor. *Asarum Canadense*, L., grows in several places near the same place. *Woodwardia angustifolia*, Smith, grows on the shore of Silver Lake. The sterile frond of this singular fern may readily be taken for Onoclea sensibilis, L. I found *Nicotiana rustica*, L., and *Martynia proboscidea*, Glox., growing as weeds in a garden at Concord. *Crataegus Crus-galli*, L., occurs along a brook near New Dorp. *Heracleum lanatum*, Michx., is plenty on the same brook, further down. *Thymus Serpyllum*, L., occurs on the Turnpike, near the Clove Road. *Pinus mitis*, Mchx., occurs near Giffords' Station, S. R. R. *Hieracium aurantiacum*, L., is an escape in the same vicinity.

One day in the latter part of May last, while botanizing on the sea beach below Giffords, I collected several plants of Opuntia vulgaris, Mill. [?], each having several buds. I took them home and laid them aside, hoping that they would open; my hopes were realized, for during June they all expanded, each plant opening one flower a day, and the blossom of one day withering on the next. While carrying one of these plants from one room to the next, it accidentally fell from my hand. When I picked it up, I noticed that the stamens, which before the fall were expanded so as nearly to touch the perianth with their anthers, were now closely packed around the pistil, the anthers pressing against the stigmas. As soon as another flower opened, I gave it a rude shock and found a like result. All of my flowers showed a similar contraction. When the plant was allowed to remain quiet for a few minutes the stamens would again expand to their normal position. I found that a slight tap was sufficient to cause the contraction. This phenomena would seem to have some connection with the fertilization of the pistil. I should like to know whether any other species of Opuntia, or, indeed, of any of the Cactaceae, have a like sensibility.

I found this afternoon a twig of *Solidago lanceolata*, L., which presents the *decided* peculiarity (to me) of being decidedly glaucous. It grew with large quantities of the common S. lanceolata and S. tenuifolia along the salt meadows near New Dorp. [The leaves are beset with resin-like spots, not truly glaucous, nor, as Mr. Peck informs us, due to fungoidal growth.—EDS.] N. L. BRITTON.

NEW DORP, Sept. 17th.

§ 190. **Gentiana Andrewsii,** Griseb.—It is curious to see a flower with so conspicuous and high-colored corolla as that of Gentiana Andrewsii ranked as probably cleistogamous. Here the corolla opens, like other Gentians, in bright sunshine, although only for a short time. Here, too, humble bees are seen to force their way into the closed flowers in the manner described by W. W. Bailey. The flowers last for a rather long while; the extrorse anthers open and expose the pollen long before the stigmas are ready; when these become exserted by the further growth of the ovary, they at first separate moderately, exposing the receptive surface to an entering bee, but not to the pollen below: at length they diverge widely, become revolute, and in doing so they but rarely bring the stigmatic surface into direct contact with the pollen below,—thus securing self-fertilization when it may no better be. This is the upshot of my observations a year ago in the Botanic Garden here. A. GRAY.

CAMBRIDGE, Oct. 15th.

§ 191. **Pollen of different sizes.**—In noting the unequal size of the pollen grains of the trimorphic flowers of Pontederia cordata, I had forgotten that Darwin had, in 1864, pointed out the difference in color and size of pollen grains of the different kinds of stamens in Lythrum. The statement, therefore, that Pontederia was perhaps even more curiously trimorphic than Lythrum, was hasty. In fact, as Dr. Koehler points out to me, dimorphic as well as trimorphic flowers are known to bear pollen grains varying in size to suit the adaptations of the flowers. W., H. L.

§ 192. **Viola cucullata.**—Explanation of the economy of the cleistogamous flowers of this plant in the last BULLETIN were read on occasion of the exhibition at the Club of very fine specimens. As printed, without this statement, they seem to be offered as a novelty, to which, of course, they have no claim.

§ 193. **Alpine Plants.**—Mr. C. G. Pringle, of Charlotte, Vt., offers for exchange or sale a few sets of the Alpine Plants of New England, the fruit of his extensive herborizing during the past summer in the White and Green Mountains. Mr. Pringle's collections contain *Gentiana Amarella var. acuta* (*American Naturalist*, Vol. II., page 620), *Anemone multifida*, *Astragalus Robbinsii*, *Gnaphalium supinum*, *Orchis rotundifolia*, *Danthonia compressa*, and all, or nearly all, the other rare plants of his region.

§ 194. **Florida Plants.**—Miss M. C. Reynolds, St. Augustine, Fla., has sets of plants for sale. Mr. Le Roy, Columbia College, N. Y., has some of these on hand.